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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,284	12/20/2001	Kei Tomihara	249-244	7654

7590

07/30/2003

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EXAMINER

YUAN, DAH WEI D

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 07/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,284

Applicant(s)

TOMIHARA ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1745

**CADMIUM NEGATIVE ELECTRODE FOR ALKALINE STORAGE BATTERY AND
METHOD FOR PRODUCING THE SAME**

Examiner: Yuan

S.N. 10/022,284

Art Unit: 1745

July 25, 2003

Information Disclosure Statement

1. The information disclosure statement filed on December 20, 2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because translations of the Japanese references, 61-158666, 61-158664 and 63-195963, are not provided. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 C(1).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,3,5 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda (JP 56-26365).

With respect to claim 1, Yasuda teaches a negative plate (electrode) for a alkaline battery. The active material for the negative plate is either cadmium oxide or cadmium hydroxide, which is mixed with polyethylene glycol and binder to make a paste. The paste is then filled a porous drilled steel-plate (substrate) or the like to obtain the negative plate. The presence of polyethylene glycol in the cadmium oxide (or cadmium hydroxide) paste constitutes a coating over the surface of the cadmium active substance. See Abstract.

With respect to claim 3, Yasuda also teaches a method for producing a cadmium negative electrode for alkaline batteries, in which the polyethylene glycol is formed as a coating on the surface of the cadmium negative electrode as discussed above.

With respect to claim 5, the resulting paste of cadmium active material/binder/polyethylene glycol is dried at 180°C for 5 minutes. See Column 5, Lines 9-11; Column 10, Lines 4-7.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 2,4,6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda (JP 56-26365) as applied to claims 1,3,5 above, and further in view of Treger et al. (US 6,514,637 B2).

With respect to claims 2 and 4, Yasuda discloses a cadmium negative electrode comprising a polyethylene glycol coating covering the surface of the active material as described above in Paragraph 3. However, Yasuda does not specifically discuss the molecular weight of the polyethylene glycol used. Treger et al. teach the coating of electrode surface with a liquid in an alkaline battery. The material may be a liquid at elevated temperature but turns solid at room temperature. The coating material is first heated so that it liquefies with low viscosity so that it becomes castable or coatable onto the surface of the electrode. Suitable material, such as polyethylene glycol having a molecular weight greater than 900, preferably greater than 1500, is used. The disclosure of Treger et al. differs from Applicant's claims in that Treger et al. do not disclose the polyethylene glycol having a mean molecular weight of 600 or higher but not more than 20000. However, Treger et al. recognize the importance of viscosity on the coatability of the polyethylene glycol on the battery electrode. See Column 18, Lines 30-42. Therefore, it would have been within the skill of the ordinary artisan to coat the cadmium negative electrode with polyethylene glycol having a mean molecular weight of 600 or higher but not more than 20000, because Treger et al. teach the molecular weight (viscosity) is critical to the coatability of the compound onto the battery electrode. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art.* In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

With respect to claim 6, Yasuda teaches that the resulting paste of cadmium active material/binder/polyethylene glycol is dried at 180°C for 5 minutes. See Column 5, Lines 9-11; Column 10, Lines 4-7.

6. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda (JP 56-26365) as applied to claims 1,3,5 above, and further in view of Linden (Handbook of Batteries).

With respect to claims 7 and 8, Yasuda discloses a cadmium negative electrode comprising a polyethylene glycol coating covering the surface of the active material as described above in Paragraph 3. However, Yasuda does not specifically discuss the use of such electrode in a nickel-cadmium alkaline battery. Linden discloses various rechargeable batteries including nickel-cadmium batteries. The nickel-cadmium batteries can be used in electric vehicles because they offer good power density, maintenance-free operation over a wide temperature range, long cycle life, and a relatively acceptable self-discharge rate. Also, a separator is used to separate the anode and the cathode because it is ionically conductive and electronically insulating. See Table 35.6, pages 10.7 and 35.15. Therefore, it would have been obvious to one of ordinary skill in the art to fabricate an alkaline battery comprising a nickel positive electrode and a cadmium negative electrode of Yasuda, because Linden teaches the many benefits of using Ni-Cd batteries in the electric vehicles.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hoshino et al. (US 6,117,592) teach use of polyethylene glycol as surfactant in the fabrication of battery electrode.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan
July 28, 2003

